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CHARLES V. SHANK
DIRECTOR

September 6, 2001

The Honorable Spencer Abraham
Secretary of Energy
U. S. Department of Energy
Forrestal Building
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Secretary Abraham:

As Director of one of the four Department of Energy national laboratories that have been leading the research activities of the Yucca Mountain Project, I am writing to communicate the views of the Ernest Orlando Lawrence Berkeley National Laboratory (Berkeley Lab) about the very high quality of this work. I am aware that the Office of Civilian Radioactive Waste Management (OCRWM), under the leadership of Acting Director Lake Barrett, is preparing documents in support of a Site Recommendation (SR) for Yucca Mountain, Nevada, as the nation's first geologic repository of high-level radioactive waste, and I hope this summary of Berkeley Lab's involvement will be helpful in your consideration of this matter.

There has been tremendous technical progress over the last few years in the Yucca Mountain Project. The Viability Assessment, completed in 1998, clearly demonstrated the viability of the project, and strongly suggested that the project continue on course. Since then, additional studies of both the natural and the engineered barriers system have significantly strengthened our technical basis for relying on those barriers.

Berkeley Lab—along with Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Sandia National Laboratories, the U.S. Geological Survey, and the M&O contractor Bechtel SAIC (and its predecessors)—has produced a vast amount of scientific knowledge about the Yucca Mountain site. For more than twenty years, these research organizations have completed numerous key investigations into the natural and engineered components of the Yucca Mountain site, according to their specific areas of expertise. This research has been performed by highly qualified scientists and engineers under a rigorous quality assurance program.

Berkeley Lab's primary Yucca Mountain Project responsibility is the study of the geologically-complex unsaturated zone (UZ) that surrounds and includes the potential repository host rock. Berkeley Lab directs all scientific work in the UZ, performs the bulk of the work, and oversees activities by other participants in this technical area. The

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UZ is one of the key barriers for radionuclide transport at Yucca Mountain and is a very important part of the SR decision.

We believe that the scientific studies conducted to date show that Yucca Mountain is a suitable site for the isolation of radioactive waste, with significant performance contributions expected from multiple redundant barriers in both natural and engineered systems. Current total system performance studies show minimal releases for hundreds of thousands of years—orders of magnitude below the Yucca Mountain standard set by the Environmental Protection Agency. While much of the repository's performance can be attributed to a robust waste package design, it is also true that the natural hydrogeologic system of Yucca Mountain has the potential to greatly enhance this performance, as recent research has indicated. Prior to the License Application, additional verification of the natural and engineered barrier systems should add further confidence in the potential repository's overall performance.

Both internal and external peer reviews are conducted as an integral part of the Yucca Mountain Project. Internal peer review by supervisors and scientific colleagues is standard practice for research at the laboratories; but the frequency, depth, and independence of the external peer reviews have provided an additional, higher level of assurance to the quality of the research. Examples include peer reviews by the Nuclear Waste Technical Review Board, the Nuclear Regulatory Commission, the extensive peer reviews associated with publication of the Viability Assessment in 1998, special panels convened by the DOE, and peer reviews associated with the refereed journal publications our scientists have produced to communicate Yucca Mountain findings to the scientific community.

It is my considered opinion and that of my staff that the Yucca Mountain site is suitable for recommendation as the nation's first geologic repository. You will have our full support should you decide to recommend Yucca Mountain to the President. We are very pleased to be a part of the DOE investigation of Yucca Mountain, and we are eager to help DOE find a solution to this important problem. Please let me know if there is any further assistance which we can provide in this important matter.

Sincerely,

Charles V. Shank

cc. Lake Barrett, Acting Director, Office of Civilian Radioactive Waste Management
Bo Bodvarsson, Division Director and LBNL/YMP Project Manager